# EXHIBIT D
# PART 2

| | |
|---|---|
| | **Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60). |
| a Shore D hardness of about 64 or less | **Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60)<br><br>ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet)<br><br>Also see below why this cover material has inherently a Shore D hardness of 55. |
| disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, | "An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.)<br><br>"[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.) |
| said outer cover layer comprising polyurethane based material. | **Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.)<br><br>**Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).)<br><br>Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer. |

As shown above in the claim chart, Nesbitt mentioning Molitor '673 suggests the use of a soft outer cover layer including a polyurethane material. In an analogous golf ball, Molitor '751 teaches that:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core **a cover having a shore C hardness less than 85**, preferably 70-80, and most preferably 72-76. The novel **cover of the golf ball** of the invention is made of a composition comprising a blend of (1) **a thermoplastic urethane having a shore A hardness less than 95** and (2) **an ionomer having a shore D hardness greater than 55**.

(Molitor '751, col. 2, ll.33-49 (emphasis added)).

Moreover, in explaining what constitutes a two-piece golf ball, Molitor '751 teaches that:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, **but also includes balls having a separate solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt**, and other balls have non-wound cores.

(Molitor '751, col. 3, ll. 7-12 (emphasis added)).

As stated above, Molitor '751 teaches the cover of the golf ball has a Shore C hardness of less than 85, preferably 70-80, most preferably 72-76. As described in Molitor '751's TABLE bridging columns 7 and 8, Sample 8 constitutes one of the preferred embodiments and its cover is taught to have a Shore C hardness of 73. Patent Owner has admitted that a Shore C hardness of 73 is equal to a Shore D hardness of 47, see U.S. Pat. No. 6,905,648, Table 19 (Exhibit L). Thus, a cover having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

How one of ordinary skill in the art would discover this inherent mechanical property of Shore D hardness for the polyurethane material used in Molitor '751 is by "translating" a Shore C value to a Shore D value for the polyurethane material. How one of ordinary skill in the art "translates" a Shore C value to a Shore D value is by taking the known Shore hardness values

with a given range, in this instance Shore C, for given materials, in this instance polyurethane golf ball covers materials, and taking corresponding measurements with a different set of Shore gauges, in this instance Shore D (but could also be Shore A). A resulting trendline plot occurs from performing this procedure wherein the range of known Shore C values are the abscissa and the range of measured Shore D values are the ordinate. Then, said plot can be use to read equivalent Shore D value for any given Shore C value within the known range of Shore C. This is how one of ordinary skill in the art can know the equivalent Shore D or even Shore A hardness value for any given Shore C hardness value.

As stated in the request on page 39

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft outer cover layer of Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan

'873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As stated in the request spanning pages 41-42

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft non-ionomeric polymeric outer cover layer incorporated by Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

Moreover, because it appears that to one of ordinary skill in the art at the time the invention was created that the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

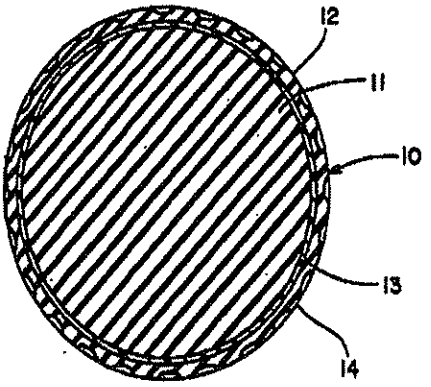
This rejection of claim 4 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #26.**

The requester submits on pages 42-46 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 4 | Proudfit |
|---|---|
| A multi-layer golf ball comprising: | "This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12) |
| a spherical core; |  "FIG. 1 illustrates a two-piece golf ball 10 which includes |

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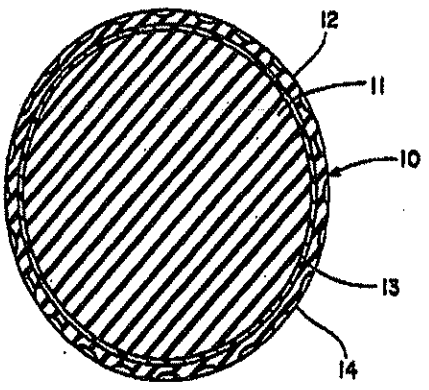
| | a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55) |
| an inner cover layer having | "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) |
| Shore D hardness of about 60 or more molded over said spherical core, | Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.<br><br>Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)<br><br>"The inner layer can be molded in one of two methods:<br>1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.<br>2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.)<br><br>See below with respect to Shore D hardness. |
| said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "The composition of the inner cover layer is described in Table 6."<br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>SURLYN 8940 and 9910 are both low acid ionomer resins |

| | |
|---|---|
| | containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.<br><br>Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. |
| having a modulus of from about 15,000 to about 70,000 psi; and | "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (col. 5, line 66-col. 6, line 1 .)<br><br>"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (col. 6, lines 6-7.)<br><br>The composition of the inner cover layer is described in Table 6.<br><br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30.) |
| an outer cover layer having | "...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below. |

<table>
<tr>
<td>a Shore D hardness of about 64 or less</td>
<td>"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)<br><br>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17.) An example of this blend is disclose in Table 7 reproduced below.<br><br>TABLE 7<br>Composition of Outer Layer (Parts by Weight)<br>
<table>
<tr><td>Trans Polyisoprene (TP-301)</td><td>60.00</td></tr>
<tr><td>Polybutadiene</td><td>40.00</td></tr>
<tr><td>Zinc Oxide</td><td>5.00</td></tr>
<tr><td>Titanium DiOxide</td><td>19.00</td></tr>
<tr><td>Ultramarine Blue color</td><td>.50</td></tr>
<tr><td>Zinc DiAcrylate</td><td>35.00</td></tr>
<tr><td>Peroxide (Varox 230 XL)</td><td>2.50</td></tr>
<tr><td>Total</td><td>160.00</td></tr>
</table>
Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td>
</tr>
<tr>
<td>disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball,</td>
<td>Figure 1 of Proudfit shows dimples formed on the outer surface<br> 
</td>
</tr>
<tr>
<td>said outer cover layer comprising polyurethane based material.</td>
<td>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, lines 15-17.) Also, see below.</td>
</tr>
</table>

As pointed out in the request on pages 45 and 46:

> While Proudfit may not expressly disclose the use of polyurethane as an outer cover material, it would have been obvious given that "[t]he patent literature is replete with proposed cover formulations seeking to improve upon the balata and ionomer covers [including] [p]olyurethane ...." (See Molitor '751, col. 2, lines 9-12.) Soft polyurethane materials had been known to be a substitute for balata covers for decades prior to the filing of the '130 patent.
>
> For example, Molitor '637 discloses the use of polyurethane material as a soft polymeric material that may be used as an outer cover layer of a golf ball. (See Molitor '637, col. 5, lines 33-41; col. 18, Examples 16 and 17.) One exemplary polyurethane material used by Molitor as an outer cover material includes Estane 58133.
>
> As was readily appreciated by those skilled in the art--including the inventor of the '130 patent--the types of materials used in a golf ball are not as critical to a golf ball's playability as are the mechanical properties of those materials. (See Exhibit G at 334.) The Estane 58133 is a relatively soft material and has a Shore D hardness of 55 and is also a low flexural modulus material having a modulus of about 25,000 psi. (See Exhibit J.) Proudfit's outer cover layer is also relatively soft and has a flexural modulus between 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31.) Due to the similarities between these two materials, the ordinarily skilled artisan would have recognized the substitutability of these two materials as well as the benefits of using polyurethane as an outer cover material.

On page 46, the request concludes:

> It would have been obvious to one of ordinary skill in the art at the time of invention to modify the balata-based outer cover layer of Proudfit to include the Estane polyurethane outer cover layer material of Molitor '637 because such was a well known substitute to balata and gives a number of advantages over balata as would have been readily appreciated by those skilled in the art. These advantages include: (1) improved processability; (2) improved durability when compared to balata; (3) cost-effectiveness when compared to balata; and (4) having a good "click" and "feel." (See *supra* [regarding the what "click" and "feel" mean to a golfer]) All of this would have led one of ordinary skill in the art to replace the soft balata outer cover layer of Proudfit with the soft polyurethane outer cover layer of Molitor '637 at the time of the alleged invention.

This rejection of claim 4 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #27.**

The requester submits on pages 46-48 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 4 | Proudfit |
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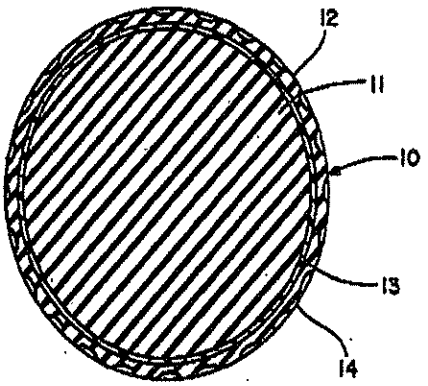
| A multi-layer golf ball comprising: | "This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12) |
| a spherical core; |  <br>"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a |

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| | 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55) |
| an inner cover layer having | "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) |
| Shore D hardness of about 60 or more molded over said spherical core, | Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.<br><br>Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)<br><br>"The inner layer can be molded in one of two methods:<br>1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.<br>2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.)<br><br>See below with respect to Shore D hardness. |
| said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "The composition of the inner cover layer is described in Table 6."<br>**TABLE 6**<br>**Composition of Inner Layer of Cover (Parts by Weight)**<br>**Ionomer Type** — **Blend Ratio**<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.<br><br>Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. |

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|---|---|
| | 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. |
| having a modulus of from about 15,000 to about 70,000 psi; and | "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (col. 5, line 66-col. 6, line 1 .)<br><br>"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (col. 6, lines 6-7.)<br><br>The composition of the inner cover layer is described in Table 6.<br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 / 75%<br>Zinc- Surlyn 9910 / 25%<br>(Proudfit, col. 8, ll. 22-30.) |
| an outer cover layer having | "...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below. |
| a Shore D hardness of about 64 or less | "FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)<br><br>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15- |

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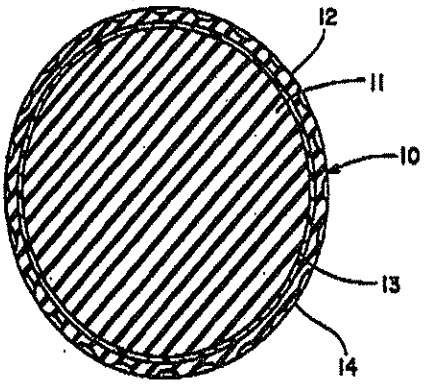
|---|---|
| | 17.) An example of this blend is disclose in Table 7 reproduced below.<br>**TABLE 7**<br>Composition of Outer Layer (Parts by Weight)<br>Trans Polyisoprene (TP-301) 60.00<br>Polybutadiene 40.00<br>Zinc Oxide 5.00<br>Titanium DiOxide 17.00<br>Ultramarine Blue color .50<br>Zinc DiAcrylate 35.00<br>Peroxide (Varox 230 XL) 2.50<br>Total 160.00<br>Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that **cover has a Shore D hardness of 52**. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64. |
| disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, | **Figure 1 of Proudfit shows dimples formed on the outer surface**<br>  <br> |
| said outer cover layer comprising polyurethane based material. | "... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, lines 15-17.) Also, see below. |

As pointed out in the request on pages 46 and 47:

... Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer of a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the soft balata

outer cover layer of Proudfit to include the soft polyurethane material taught by Wu. Wu teaches that: "The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit. It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and 'feel" of balata. (Wu at col. 1, lines 36-46.) As the inventor of the '130 patent had indicated in a 1994 publication, golf ball designers understood that the mechanical properties of the layers impacted the performance of the golf ball more than the materials themselves. (Exhibit G at 334.) Additionally, Wu's polyurethane material inherently has a flexural modulus of about 23,000 psi as measured in accordance with ASTM standards. (Decl. of Jeff Dalton at ¶ 7.) Proudfit's outer cover layer material has a flexural modulus of between about 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31 .) Thus, one of ordinary skill in the art would have appreciated that using Wu's polyurethane as Proudfit's outer cover layer would have provided similar playability characteristics as well as numerous advantages including, for example, durability.

Based on Wu's teachings, one of ordinary skill in the art would have recognized the substitutability of soft polyurethane for soft balata-based materials and the advantages of making such a substitution. These advantages include (1) low price compared to balata; (2) better cut resistance when compared to balata; and (3) a "click" and "feel" that is similar to balata. Moreover, the replacing the balata-material taught by Proudfit would have been obvious to those skilled in the art prior to November 9, 1995 because before that time, the Titleist Professional™ golf ball, which had used Wu's polyurethane material, had replaced balata-covered balls as the market leader. (See Exhibit C; see also Decl. of Jeffery L. Dalton at ¶¶ 3-4.)

On page 48 the request concludes with:

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to modify Proudfit's golf ball by replacing the soft balata outer cover layer with an outer cover layer made of soft polyurethane material because polyurethane provides numerous advantages over balata while exhibiting the "click" and "feel" of balata.

This rejection of claim 4 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #28.**

The requester submits on pages 48-49 that claim 4 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

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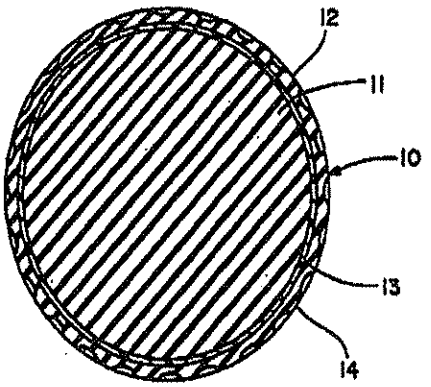
|---|---|
| A multi-layer golf ball comprising: | "This **invention relates to golf balls**, and more particularly, to a golf ball having a two-layer cover." (Proudfit, col. 1, ll. 11-12) |
| a spherical core; |  <br>"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a |

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| | 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55) |
| an inner cover layer having | "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24) |
| Shore D hardness of about 60 or more molded over said spherical core, | Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.<br><br>Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)<br><br>"The inner layer can be molded in one of two methods:<br>1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.<br>2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core."<br>(Proudfit, col. 8, lines 32-38.)<br><br>See below with respect to Shore D hardness. |
| said inner cover layer comprising an ionomeric resin including no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "The composition of the inner cover layer is described in Table 6."<br>**TABLE 6**<br>**Composition of Inner Layer of Cover (Parts by Weight)**<br>**Ionomer Type** / **Blend Ratio**<br>Sodium - Surlyn 8940 — 75%<br>Zinc - Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.<br><br>Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. |

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| | 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. |
| having a modulus of from about 15,000 to about 70,000 psi; and | "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (col. 5, line 66-col. 6, line 1 .)<br><br>"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (col. 6, lines 6-7.)<br><br>The composition of the inner cover layer is described in Table 6.<br><br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 / 75%<br>Zinc- Surlyn 9910 / 25%<br><br>(Proudfit, col. 8, ll. 22-30.) |
| an outer cover layer having | "...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below. |
| a Shore D hardness of about 64 or less | "FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)<br><br>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15- |

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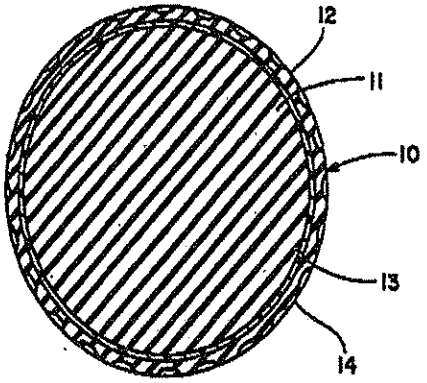
|---|---|
| | 17.) An example of this blend is disclose in Table 7 reproduced below.<br>**TABLE 7**<br>Composition of Outer Layer (Parts by Weight)<br>Trans Polyisoprene (TP-301) 60.00<br>Polybutadiene 40.00<br>Zinc Oxide 5.00<br>Titanium DiOxide 17.00<br>Ultramarine Blue color .50<br>Zinc DiAcrylate 31.00<br>Peroxide (Varox 230 XL) 2.50<br>Total 160.00<br>Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that **cover has a Shore D hardness of 52**. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64. |
| disposed about said inner cover layer and defining a plurality of dimples to form a multi-layer golf ball, | **Figure 1 of Proudfit shows dimples formed on the outer surface**<br>  <br> |
| said outer cover layer comprising polyurethane based material. | "... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, lines 15-17.) Also, see below. |

As pointed out in the request on pages 48 and 49:

...Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer for a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Proudfit's

golf ball by replacing the soft balata outer cover layer with the soft polyurethane outer cover layer taught by Molitor '751.

Molitor '751 teaches that: It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55. (Molitor '751, col. 2, lines 33-49.) In explaining what a "two-piece" golf ball is, the Molitor '751 patent explains that: The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and Other balls having non-wound cores. (Molitor '751, col. 2, lines 7-12.)

Proudfit teaches a "two-piece" golf ball that fits within this definition. Molitor '751 explains that the advantages of using a cover layer including a soft polyurethane material on a two-piece golf ball, such as the golf ball of Proudfit, include "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two- piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

Molitor expresses the hardness of the cover material as a Shore C hardness of less than 85, preferably 70 to 85 and most preferably 72 to 76. (Molitor '751, col. 4, lines 21-25.) Based on Callaway's own measurements, a Shore C hardness of 73 is equal to a Shore D hardness of 47. (See U.S. Patent No. 6,905,648, Table 19 (Exhibit L.) A cover material having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

On page 49 the request concludes:

> Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the soft balata outer cover layer of Proudfit with the soft outer cover layer including a soft polyurethane material as taught by Molitor '751 to provide golf balls that have "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

This rejection of claim 4 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 5

**Proposed Third Party Requester Rejection: Ground #29.**

The requester submits on pages 50-51 that claim 5 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

**This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.**

**Proposed Third Party Requester Rejection: Ground #30.**

In the alternative, the requester submits on page 51 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 5 | Nesbitt |
|---|---|
| A golf ball according to claim 4, wherein | See above. |
| said inner cover layer has a thickness of about 0.100 to about 0.010 inches and | "It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.) |
| said outer cover layer has a thickness of about 0.010 to about 0.070 inches, | "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of |

| | |
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| | a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.) |
| said golf ball having an overall diameter of 1.680 inches or more.. | "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.) |

This rejection of claim 5 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #31.**

The requester submits on page 51 of the request that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 5 | Nesbitt |
|---|---|

| | |
|---|---|
| A golf ball according to claim 4, wherein | See above. |
| said inner cover layer has a thickness of about 0.100 to about 0.010 inches and | "It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.) |
| said outer cover layer has a thickness of about 0.010 to about 0.070 inches, | "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.) |

This rejection of claim 5 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #32.**

The requester submits on page 51 of the request that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 5 | Nesbitt |
|---|---|
| A golf ball according to claim 4, wherein | See above. |
| said inner cover layer has a thickness of about 0.100 to about 0.010 inches and | "It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.) |
| said outer cover layer has a thickness of about 0.010 to about 0.070 inches, | "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.) "This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.) |

This rejection of claim 5 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #33.**

The requester submits on pages 51-52 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 5 | Proudfit |
|---|---|
| A golf ball according to claim 4, wherein | See above. |
| said inner cover layer has a thickness of about 0.100 to about 0.010 inches and | "The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, lines 37-40.) "The preferred dimensions are ... an inner layer thickness of 0.037 inch ...." (Proudfit, col. 7, lines 43-44.) |
| said outer cover layer has a thickness of about 0.010 to about 0.070 inches, | "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch ...." (Proudfit, col. 7, lines 40-46.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.) |

This rejection of claim 5 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #34.**

The requester submits on pages 51-52 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 5 | Proudfit |
|---|---|
| A golf ball according to claim 4, wherein | See above. |
| said inner cover layer has a thickness of about 0.100 to about 0.010 inches and | "The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, lines 37-40.) "The preferred dimensions are ... an inner layer thickness of 0.037 inch ...." (Proudfit, col. 7, lines 43-44.) |
| said outer cover layer has a thickness of about 0.010 to about 0.070 inches, | "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch ...." (Proudfit, col. 7, lines 40-46.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.) |

This rejection of claim 5 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #35.**

The requester submits on pages 51-52 that claim 5 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 5 | Proudfit |
|---|---|
| A golf ball according to claim 4, wherein | See above. |
| said inner cover layer has a thickness of about 0.100 to about 0.010 inches and | "The thickness of the inner layer can be within the range of about 0.0250 to 0.2875 inch to provide a total diameter of the inner layer and core within the range of about 1.550 to 1.590 inch." (Proudfit, col. 7, lines 37-40.) "The preferred dimensions are ... an inner layer thickness of 0.037 inch ...." (Proudfit, col. 7, lines 43-44.) |
| said outer cover layer has a thickness of about 0.010 to about 0.070 inches, | "The thickness of the outer layer can be within the range of about 0.0450 to 0.0650 inch to provide a total ball diameter of 1.680 inch. The preferred dimensions are ... an outer layer thickness of 0.0525 inch ...." (Proudfit, col. 7, lines 40-46.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "The preferred dimensions are a core diameter of 1.500 inch, and inner layer thickness of 0.037 inch (inner layer |

| | |
|---|---|
| | diameter of 1.575 inch), and an outer layer thickness of 0.0525 inch (total ball diameter of 1.680 inch)." (Proudfit, col. 7, lines 43-47.) |

This rejection of claim 5 based on Proudfit in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 6

**Proposed Third Party Requester Rejection: Ground #36.**

The requester submits on pages 52-53 that claim 6 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

**This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.**

**Proposed Third Party Requester Rejection: Ground #37.**

In the alternative, the requester submits on pages 52-53 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 6 | Nesbitt |
|---|---|
| A golf ball according to claim 4 wherein | See above. |
| said inner cover layer has a thickness of about 0.050 inches and | "It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.) |
| said outer cover layer has a thickness of about 0.055 inches, | "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.)<br><br>"This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.) |

This rejection of claim 6 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #38.**

In the alternative, the requester submits on page 53 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 6 | Nesbitt |
|---|---|
| A golf ball according to claim 4 wherein | See above. |
| said inner cover layer has a thickness of about 0.050 inches and | "It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.) |
| said outer cover layer has a thickness of about 0.055 inches, | "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.)<br><br>"This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.) |

This rejection of claim 6 based on Nesbitt in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #39.**

In the alternative, the requester submits on pages 52-53 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 6 | Nesbitt |
|---|---|
| A golf ball according to claim 4 wherein | See above. |
| said inner cover layer has a thickness of about 0.050 inches and | "It is found that the inner layer of hard, high flexural modulus resinous material such as Surlyn® resin type 1605, is preferably of a thickness in a range of 0.020 inches and 0.070 inches." (Nesbitt, col. 3, lines 19-23.) |
| said outer cover layer has a thickness of about 0.055 inches, | "The thickness of the outer layer or cover 16 of soft, low flexural modulus resin such as Surlyn type 1855, may be in the range of 0.020 inches and 0.100 inches." (Nesbitt, col. 3, lines 22-25.) "The outer layer of the soft resin is of a thickness of 0.0575 inches." (Nesbitt, col. 3, lines 39-40.) |
| said golf ball having an overall diameter of 1.680 inches or more. | "According to the United States Golf Association Rules, the minimum diameter prescribed for a golf ball is 1.680 inches ...." (Nesbitt, col. 2, lines 50-52.)<br><br>"This center or core 12 and inner layer 14 of hard resinous material in the form of a sphere is then remolded into a dimpled golf ball of a diameter of 1.680 inches minimum with an outer or cover layer 16 of a soft, low flexural modulus resin ...." (Nesbitt, col. 3, lines 34-38.) |

This rejection of claim 6 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejections: Ground #40-42.**

The requester submits on pages 53-54 that claim 6 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637); Wu, U.S. Pat. No. 5,334,673 (Wu); or Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

**These rejections are not adopted for the reasons given in Order Granting Reexamination, dated 04/07/2006, at paragraph #23, which is incorporated herein.**

Re. Claim 7

**Proposed Third Party Requester Rejection: Ground #43.**

The requester submits on pages 56-59 that claim 7 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

**This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.**

**Proposed Third Party Requester Rejection: Ground #44.**

In the alternative, the requester submits on pages 56-59 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Molitor '637 discloses, teaches or suggests the claim limitations.

| Claim 7 | Nesbitt mentioning Molitor '637 |
|---|---|
| A multi-layer golf ball comprising: | "The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.) |
| a spherical core; | "Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.) |
| an inner cover layer molded over said spherical core to form a spherical intermediate ball, | "Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.) |
| said inner cover layer having a Shore D hardness of at least 60, | "[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.)<br><br>"[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.)<br><br>Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65. |
| said inner cover layer comprising | "Reference is made to the application Ser. No. 155,658, |

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| an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61).<br><br>**Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).<br><br>Per the '293 Patent: "Type 1605 Surlyn® (Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin ...." ('293 patent, col. 2, lines 54-58.) |
| having a modulus of from about 15,000 to about 70,000 psi; and | See below. |
| a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, | "An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.)<br><br>"[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.) |
| said outer cover having a Shore D hardness of 64 or less, | **Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60).<br><br>**Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60)<br><br>ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet)<br><br>Also see below why this cover material has inherently a Shore D hardness of 55. |

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| said outer layer comprising a polyurethane, | **Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.)<br><br>**Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).)<br><br>Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer. |
| said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi. | Exhibit J: Estane 58133 Product Information: Estane 58133 has a modulus of 25,000 psi.<br><br>Nesbitt: Nesbitt's exemplary outer cover layer is made of Surlyn® 1855, which has the same hardness as Estane 58133 and has a flexural modulus of 14,000 psi. |

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan

'873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

Exhibit J is a product information sheet for Estane 58133 a material that is taught to be used as an outer layer. Exhibit J teaches that Estane 58133 has a flexural modulus of 25,000 psi.

This rejection of claim 7 based on Nesbitt in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #45.**

The requester submits on pages 59-61 of the request that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

Below is a claim chart identifying the claim limitations and which reference Nesbitt or Wu discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

| Claim 7 | Nesbitt mentioning Molitor '637 |
|---|---|
| A multi-layer golf ball comprising: | "The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.) |
| a spherical core; | "Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.) |
| an inner cover layer molded over said spherical core to form a spherical intermediate ball, | "Disposed on the spherical center or core 12 is a first layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.) |
| said inner cover layer having a Shore D hardness of at least 60, | "[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.)<br><br>"[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.)<br><br>Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65. |
| said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61). |

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| | **Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).<br><br>Per the '293 Patent: "Type 1605 Surlyn® (Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin ...." ('293 patent, col. 2, lines 54-58.) |
| having a modulus of from about 15,000 to about 70,000 psi; and | See below. |
| a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, | "An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.)<br><br>"[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.) |
| said outer cover having a Shore D hardness of 64 or less, | **Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60).<br><br>**Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60)<br><br>ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet)<br><br>Also see below why this cover material has inherently a Shore D hardness of 55.<br><br>**Wu**: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, *inter alia*, the time, temperature, type of curative, and amount of catalyst used. It has been found that the degree of cure of the |

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| | cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the cover stock at the end of the intermediate curing step (i.e. just prior to the final molding step) has been found to be suitable for the present invention, More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38.)<br><br>See below for more explanation of how Wu teaches and/or suggests the Shore D hardness of 64 or less limitation explanation. |
| said outer layer comprising a polyurethane, | **Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.)<br><br>**Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).)<br><br>Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.<br><br>**Wu**: "Preferably, a golf ball is made in accordance with the present invention by molding a cover about a core wherein the cover is formed from a polyurethane composition comprising a polyurethane prepolymer and a slow-reacting polyamine curing agent or a difunctional glycol." (Wu, col. 3, ll. 62-66.) |
| said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi. | Exhibit J: Estane 58133 Product Information: Estane 58133 has a modulus of 25,000 psi.<br><br>Nesbitt: Nesbitt's exemplary outer cover layer is made of Surlyn® 1855, which has the same hardness as Estane 58133 and has a flexural modulus of 14,000 psi. |

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As mentioned above, Nesbitt mentioning Molitor '637 teaches the use of particular polyurethane materials for the use as an outer layer. Wu teaches that polyurethane was being used as the outer layer of golf ball *circa* 1993. Wu further teaches in col. 1:36-46 that SURLYN

covered golf balls lack the "click" and "feel" of balata which golfers have become accustomed to such sensations and polyurethane covered golf balls can be made to have a similar "click" and "feel" of balata. Wu also at least teaches that polyurethanes made according to its invention will have Shore D hardness directly proportional to the degree of cure of the cover; and this Shore D hardness ranges from 10 to 30, preferably 12 to 20 on the Shore D scale, see col. 6:26-38. This teaching of Shore D hardness is directed to an intermediate curing step product prior to the final molding process to finish the golf ball. Exhibit C demonstrates the actual finished golf ball product having the cover layer that Wu teaches within its disclosure. Exhibit C teaches that the golf ball taught therein is covered by the following patents: 4,783,078; 4,846,910; 4,858,923; 4,904,320; 4,915,390; 5,007,594; 5,080,367; 5,133,509; **5,334,673**; and D339,074. The '673 Patent teaches the cover sock of the Exhibit C finished golf ball. Exhibit C teaches that the golf ball taught therein has a cover material made from an "elastomer", having a thickness of .050", and 58 Shore D hardness. All three properties are within the range of mechanical properties of the claim invention (polyurethane is an elastomer, cover layer thickness ranges from 0.010 to 0.070 inches and the Shore D hardness is less that 64). Because it has been admitted by the inventor of the Sullivan '893 patent that the particular chemical properties of the materials (the chemical composition) used in the construction of a golf ball lack criticality as compared to the mechanical properties (the Shore D hardness, flexural modulus, layer thickness) of those compounds used for constructing the different layers (Exhibit G at 334), one of ordinary skill in the art at the time the invention was made would find it obvious to incorporate the teachings of Wu which inherently include the teachings of Shore hardness for the fully cured cover layer as taught in Exhibit C as obvious equivalent materials in order to achieve the same end result of

providing a cover layer that has the same "click" and "feel" of a balata cover which the extra durability of an elastomeric material.

This rejection of claim 7 based on Nesbitt mentioning Molitor '637 in view of Wu as evidenced by Exhibit C was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #46.**

The requester submits on pages 61-63 of the request that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations. As reported in the Order granting reexamination, it needs to be correctly stated on the record that Nesbitt and Molitor '637 which is mentioned in Nesbitt teach the use of particular polyurethane materials for the use as an outer layer.

| Claim 7 | Nesbitt mentioning Molitor '637 with Wu (teaching) |
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| A multi-layer golf ball comprising: | "The disclosure embraces a golf ball and method of making same...." (Nesbitt, Abstract; FIGS 1 & 2.) |
| a spherical core; | "Referring to the drawings in detail there is illustrated a golf ball 10 which comprises a solid center or core formed as a solid body of resilient polymeric material or rubber-like material in the shape of a sphere." (Nesbitt, col. 2, lines 31-34.) |
| an inner cover layer molded over | "Disposed on the spherical center or core 12 is a first |

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| said spherical core to form a spherical intermediate ball, | layer, lamination, ply or inner cover 14 of molded hard, highly flexural modulus resinous material...." (Nesbitt, col. 2, lines 31-34.) |
| said inner cover layer having a Shore D hardness of at least 60, | "[I]nner cover 14 of molded hard, highly flexural modulus resinous material such as type 1605 Surlyn® marketed by E.I. DuPont de Nemours." (Nesbitt, col. 2, lines 36-38.)<br><br>"[A] center or core 12 ... is molded with a layer of hard, high modulus Surlyn resin, such as Surlyn type 1605..." (Nesbitt, col. 3, lines 27-29.)<br><br>Exhibit I: DuPont Surlyn Product Information: Surlyn® 8940 (formerly 1605 (see '293 patent, col. 2, lines 54-55)) has a Shore D hardness of 65. |
| said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "Reference is made to the application Ser. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 [inner] and 16 [outer] for the golf ball of this invention." (Nesbitt, col. 3, ll. 56-61).<br><br>**Molitor '637**: Molitor teaches, in examples 1-7, cover materials including a blend of two ionomer resins: SURLYN 1605 and SURLYN 1557. (Molitor '637, col. 14, l. 22 to col. 16, l. 34).<br><br>Per the '293 Patent: "Type 1605 Surlyn® (Surlyn® 8940) is a sodium ion based low acid (less than or equal to 15 weight percent methacrylic acid) ionomer resin ...." ('293 patent, col. 2, lines 54-58.) |
| having a modulus of from about 15,000 to about 70,000 psi; and | See below. |
| a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, | "An outer layer, ply, lamination or cover 16 of comparatively soft, low flexural modulus resinous material ... is then re-molded onto the inner ply or layer 14 ...." (Nesbitt, col. 2, lines 43-47.)<br><br>"[T]he outer layer or cover 16 being of dimpled configuration ...." (Nesbitt, col. 2, lines 48-49; Fig. 2.) |

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| said outer cover having a Shore D hardness of 64 or less, | **Nesbitt:** "Reference is made to the application Ser. No. 155,658 of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for ... layers ... 16 for the golf ball of this invention." (Nesbitt, col. 3, ll. 54-60).<br><br>**Molitor '637**: Teaches the use of ESTANE 58133 in Examples 16 and 17. (Molitor '637, col. 18, ll. 32-60)<br><br>ESTANE 58133 has a **Shore D hardness of 55**, see Exhibit J (ESTANE Thermoplastic Polyurethane Product Data Sheet)<br><br>Also see below why this cover material has inherently a Shore D hardness of 55.<br><br>**Wu**: "With polyurethanes made in accordance with the present invention, the degree of cure which has taken place is dependent upon, *inter alia*, the time, temperature, type of curative, and amount of catalyst used. It has been found that the degree of cure of the cover composition is directly proportional to the hardness of the composition. A hardness of about 10D to 30D, Shore D hardness for the cover stock at the end of the intermediate curing step (i.e. just prior to the final molding step) has been found to be suitable for the present invention, More preferred is a hardness of about 12D to 20D." (Wu, col. 6, ll. 27-38.)<br><br>See below for more explanation of how Wu teaches and/or suggests the Shore D hardness of 64 or less limitation explanation. |
| said outer layer comprising a polyurethane, | **Nesbitt:** "Reference is made to the application Set. No. 155,658, of Robert P. Molitor issued into U.S. Pat. No. 4,274,637 which describes a number of foamable compositions of a character which may be employed for one or both layers 14 and 16." (Nesbitt, col. 3, lines 54-60.)<br><br>**Molitor '637:** Teaches cover materials including "polyurethanes such as are prepared from polyols and |

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| | organic polyisocyanates"; specifically Estane 58133 thermoplastic polyurethane. (Molitor '637, col. 5, lines 39-41; col. 18, lines 31-59 (examples 16 and 17).)<br><br>Exhibit J: ESTANE 58133 is a Polyester-Type **Thermoplastic Polyurethane** (TPU Compound) which is a non-ionomeric thermoplastic elastomer.<br><br>**Wu**: "Preferably, a golf ball is made in accordance with the present invention by molding a cover about a core wherein the cover is formed from a polyurethane composition comprising a polyurethane prepolymer and a slow-reacting polyamine curing agent or a difunctional glycol." (Wu, col. 3, ll. 62-66.) |
| said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi. | Exhibit J: Estane 58133 Product Information: Estane 58133 has a modulus of 25,000 psi.<br><br>Nesbitt: Nesbitt's exemplary outer cover layer is made of Surlyn® 1855, which has the same hardness as Estane 58133 and has a flexural modulus of 14,000 psi. |

As shown above in the claim chart, Nesbitt mentioning Molitor '673 suggests the use of a soft outer cover layer including a polyurethane material. In an analogous golf ball, Molitor '751 teaches that:

> It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core **a cover having a shore C hardness less than 85**, preferably 70-80, and most preferably 72-76. The novel **cover of the golf ball** of the invention is made of a composition comprising a blend of (1) **a thermoplastic urethane having a shore A hardness less than 95** and (2) **an ionomer having a shore D hardness greater than 55**.

(Molitor '751, col. 2, ll.33-49 (emphasis added)).

Moreover, in explaining what constitutes a two-piece golf ball, Molitor '751 teaches that:

> The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, **but also includes balls having a separate solid layer**

> **beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt**, and other balls have non-wound cores.

(Molitor '751, col. 3, ll. 7-12 (emphasis added)).

As stated above, Molitor '751 teaches the cover of the golf ball has a Shore C hardness of less than 85, preferably 70-80, most preferably 72-76. As described in Molitor '751's TABLE bridging columns 7 and 8, Sample 8 constitutes one of the preferred embodiments and its cover is taught to have a Shore C hardness of 73. Patent Owner has admitted that a Shore C hardness of 73 is equal to a Shore D hardness of 47, see U.S. Pat. No. 6,905,648, Table 19 (Exhibit L). Thus, a cover having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

How one of ordinary skill in the art would discover this inherent mechanical property of Shore D hardness for the polyurethane material used in Molitor '751 is by "translating" a Shore C value to a Shore D value for the polyurethane material. How one of ordinary skill in the art "translates" a Shore C value to a Shore D value is by taking the known Shore hardness values with a given range, in this instance Shore C, for given materials, in this instance polyurethane golf ball covers materials, and taking corresponding measurements with a different set of Shore gauges, in this instance Shore D (but could also be Shore A). A resulting trendline plot occurs from performing this procedure wherein the range of known Shore C values are the abscissa and the range of measured Shore D values are the ordinate. Then, said plot can be use to read equivalent Shore D value for any given Shore C value within the known range of Shore C. This is how one of ordinary skill in the art can know the equivalent Shore D or even Shore A hardness value for any given Shore C hardness value.

As mentioned above, Nesbitt references Molitor '637 as describing an number of compositions suitable for the inner cover layer 14. Of particular interest in this case are Examples 1-7 within Molitor '637. Examples 1-7 use a ratio of SURLYN 1605 and SURLYN 1557. The use of SURLYN grades for golf ball covers is also disclosed in U.S. Pat. No. 4,690,981. The preferred composition in the '981 Patent has "from about 5[%] to about 15% by weight of unsaturated carboxylic acid." '981 Pat., col. 3, ll. 59-60. Those of ordinary skill in the art understand that SURLYN 1605 has been "redesignated" as SURLYN 8940 and SURLYN 1557 has been "redesignated" as SURLYN 9650, see e.g. U.S. Pat. No. 4,679,795, col. 6, ll. 10-15 and U.S. Pat. No. 5,150,906, col. 4, ll. 66. Furthermore, the Patent Owner in the Sullivan '873 Patent admitted that SURLYN 1605 is now designated as 8940 and was used in Nesbitt's first (inner) layer and is a sodium ion based low acid "(less than or equal to 15 weight percent methacrylic acid) ionomer resin having a flexural modulus of about 51,000 psi." See '873 Patent, col. 2, ll. 43-50. Moreover, as shown in the "Properties Grid for Selected Industrial Grades of SURLYN" SURLYN 9650's ordinate compared to the other grades of SURLYN is toward the "Low % Acid" side of the graph. Thus, based on this evidence, Nesbitt referencing Molitor '637 inherently teaches using as an inner layer at least one ionomer resin having no more than 16% by weight of alpha, beta-unsaturated carboxylic acid. Moreover, as stated above, it has been identified that one resin in Nesbitt has a flexural modulus of 51,000 psi. This teaching of flexural modulus falls within the range claimed (15,000 psi to 70,000 psi).

As stated in the request spanning page 63

> It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the soft non-ionomeric polymeric outer cover layer incorporated by Nesbitt and replace it with an outer cover layer made of the soft polyurethane material taught by Molitor '751 to provide a golf ball that includes

> "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, ll. 61-68)

Moreover, because it appears that to one of ordinary skill in the art at the time the invention was created that the actual chemical composition of the material is not critical to the practice of the invention with respect to its mechanical performance, i.e. its "click and feel" for a golfer, one of ordinary skill in the art at the time the invention was made would find it obvious to substitute one material for another material if both materials had substantially the same mechanical properties.

This rejection of claim 7 based on Nesbitt in view of Molitor '751 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

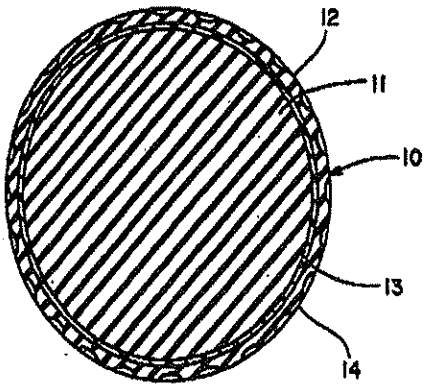
**Proposed Third Party Requester Rejection: Ground #47.**

The requester submits on pages 63-67 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

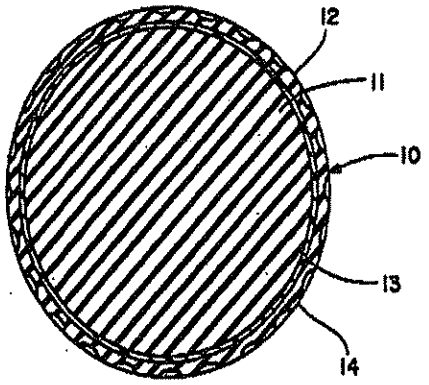
Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 7 | Proudfit |
|---|---|

| | |
|---|---|
| A multi-layer golf ball comprising: | "This **invention relates to golf balls**, and more particularly, to a golf ball having a **two-layer cover**." (Proudfit, col. 1, ll. 11-12) |
| a spherical core; |  <br>"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55) |
| an inner cover layer molded over said spherical core to form a spherical intermediate ball, | "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"The inner layer can be molded in one of two methods:<br>1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.<br>2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.) |

| | |
|---|---|
| said inner cover layer having a Shore D hardness of at least 60, | "The composition of the inner cover layer is described in Table 6."<br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type — Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.<br><br>Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.) |
| said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "The composition of the inner cover layer is described in Table 6."<br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type — Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.<br><br>Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 |

<table>
<tr><td></td><td>would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.</td></tr>
<tr><td>having a modulus of from about 15,000 to about 70,000 psi; and</td><td>"The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (Proudfit, col. 5, line 66-col. 6, line 1 .)<br><br>"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (Proudfit, col. 6, ll. 6-7.)<br><br>The composition of the inner cover layer is described in Table 6.<br><br>TABLE 6<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type — Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30.)</td></tr>
<tr><td>a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball,</td><td>Figure 1 of Proudfit shows dimples formed on the outer surface<br> 
</td></tr>
<tr><td>said outer cover having a Shore D hardness of 64 or less,</td><td>"FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)</td></tr>
</table>

<table>
<tr><td></td><td>"...an outer layer of soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.<br><br>An example of this blend is disclose in Table 7 reproduced below.<br><br>TABLE 7<br><table><tr><th colspan="2">Composition of Outer Layer<br>(Parts by Weight)</th></tr><tr><td>Trans PolyIsoprene (TP-301)</td><td>60.00</td></tr><tr><td>Polybutadiene</td><td>40.00</td></tr><tr><td>Zinc Oxide</td><td>5.00</td></tr><tr><td>Titanium DiOxide</td><td>17.00</td></tr><tr><td>Ultramarine Blue color</td><td>.50</td></tr><tr><td>Zinc DiAcrylate</td><td>35.00</td></tr><tr><td>Peroxide (Varox 230 XL)</td><td>2.50</td></tr><tr><td>Total</td><td>160.00</td></tr></table><br>Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that cover has a Shore D hardness of 52. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64.</td></tr>
<tr><td>said outer layer comprising a polyurethane,</td><td>"... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, ll. 15-17.) Also, see below.</td></tr>
<tr><td>said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi.</td><td>"The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,379 psi." (Proudfit, col. 6, ll. 28-31.)</td></tr>
</table>

As pointed out in the request on page 66 and 67:

While Proudfit may not expressly disclose the use of polyurethane as an outer cover material, it would have been obvious given that "[t]he patent literature is replete with proposed cover formulations seeking to improve upon the balata and ionomer covers [including] [p]olyurethane ...." (See Molitor '751, col. 2, lines 9-12.) Soft polyurethane materials had been known to be a substitute for balata covers for decades prior to the filing of the '130 patent.

For example, Molitor '637 discloses the use of polyurethane material as a soft polymeric material that may be used as an outer cover layer of a golf ball. (See Molitor '637, col. 5, lines 33-41; col. 18, Examples 16 and 17.) One exemplary polyurethane material used by Molitor as an outer cover material includes Estane 58133.

As was readily appreciated by those skilled in the art--including the inventor of the '130 patent--the types of materials used in a golf ball are not as critical to a golf ball's playability as are the mechanical properties of those materials. (See Exhibit G at 334.) The Estane 58133 is a relatively soft material and has a Shore D hardness of 55 and is also a low flexural modulus material having a modulus of about 25,000 psi. (See Exhibit J.) Proudfit's outer cover layer is also relatively soft and has a flexural modulus between 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31.) Due to the similarities between these two materials, the ordinarily skilled artisan would have recognized the substitutability of these two materials as well as the benefits of using polyurethane as an outer cover material.

On page 67, the request concludes:

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the balata-based outer cover layer of Proudfit to include the Estane polyurethane outer cover layer material of Molitor '637 because such was a well known substitute to balata and gives a number of advantages over balata as would have been readily appreciated by those skilled in the art. These advantages include: (1) improved processability; (2) improved durability when compared to balata; (3) cost-effectiveness when compared to balata; and (4) having a good "click" and "feel." (See *supra* [regarding the what "click" and "feel" mean to a golfer]) All of this would have led one of ordinary skill in the art to replace the soft balata outer cover layer of Proudfit with the soft polyurethane outer cover layer of Molitor '637 at the time of the alleged invention.

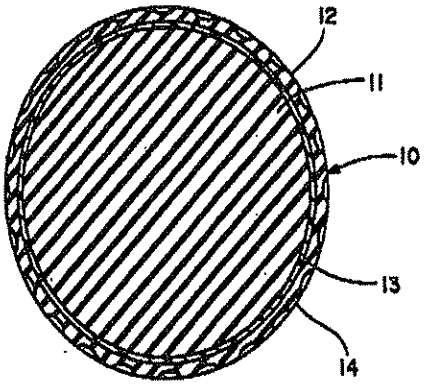
This rejection of claim 7 based on Proudfit in view of Molitor '637 was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #48.**

The requester submits on pages 68-69 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 7 | Proudfit |
|---|---|
| A multi-layer golf ball comprising: | "This **invention relates to golf balls**, and more particularly, to a golf ball having a **two-layer cover**." (Proudfit, col. 1, ll. 11-12) |
| a spherical core; |  <br>"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55) |
| an inner cover layer molded over said spherical core to form a spherical intermediate ball, | "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more** |

<table>
<tr><td></td><td>ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"The inner layer can be molded in one of two methods:<br>1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.<br>2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.)</td></tr>
<tr><td>said inner cover layer having a Shore D hardness of at least 60,</td><td>"The composition of the inner cover layer is described in Table 6."<br>TABLE 6<br>Composition of Inner Layer of Cover (Parts by Weight)<br><table><tr><th>Ionomer Type</th><th>Blend Ratio</th></tr><tr><td>Sodium- Surlyn 8940</td><td>75%</td></tr><tr><td>Zinc- Surlyn 9910</td><td>25%</td></tr></table><br>(Proudfit, col. 8, ll. 22-30)<br><br>Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.<br><br>Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.)</td></tr>
<tr><td>said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and</td><td>"The composition of the inner cover layer is described in Table 6."<br>TABLE 6<br>Composition of Inner Layer of Cover (Parts by Weight)<br><table><tr><th>Ionomer Type</th><th>Blend Ratio</th></tr><tr><td>Sodium- Surlyn 8940</td><td>75%</td></tr><tr><td>Zinc- Surlyn 9910</td><td>25%</td></tr></table><br>(Proudfit, col. 8, ll. 22-30)<br><br>SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.<br><br>Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For</td></tr>
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| | instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight."** ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. |
| having a modulus of from about 15,000 to about 70,000 psi; and | "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (Proudfit, col. 5, line 66-col. 6, line 1 .)<br><br>"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (Proudfit, col. 6, ll. 6-7.)<br><br>The composition of the inner cover layer is described in Table 6.<br><br>**TABLE 6**<br>**Composition of Inner Layer of Cover (Parts by Weight)**<br>**Ionomer Type** — **Blend Ratio**<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30.) |
| a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, | **Figure 1 of Proudfit shows dimples formed on the outer surface** |

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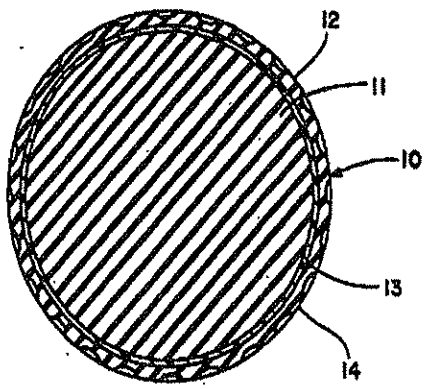
| |  |
| said outer cover having a Shore D hardness of 64 or less, | "FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)<br><br>"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.<br><br>An example of this blend is disclose in Table 7 reproduced below.<br><br>**TABLE 7**<br>**Composition of Outer Layer (Parts by Weight)**<br>Trans Polyisoprene (TP-301) 60.00<br>Polybutadiene 40.00<br>Zinc Oxide 5.00<br>Titanium DiOxide 17.00<br>Ultramarine Blue color .50<br>Zinc DiAcrylate 35.00<br>Peroxide (Varox 230 XL) 2.50<br>Total 160.00<br><br>Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that **cover has a Shore D hardness of 52**. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64. |
| said outer layer comprising a | "... an outer layer of soft material such as balata or a |

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|---|---|
| polyurethane, | blend of balata and other elastomers." (col. 5, ll. 15-17.) Also, see below. |
| said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi. | "The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,379 psi." (Proudfit, col. 6, ll. 28-31.) |

As pointed out in the request on pages 68 and 69:

... Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer of a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the soft balata outer cover layer of Proudfit to include the soft polyurethane material taught by Wu. Wu teaches that: "The problem with SURLYN®-covered golf balls, however, is that they lack the "click" and "feel" which golfers had become accustomed to with balata. "Click" is the sound when the ball is hit by a golf club and "feel" is the overall sensation imparted to the golfer when the ball is hit. It has been proposed to employ polyurethane as a cover stock for golf balls because, like SURLYN®, it has a relatively low price compared to balata and provides superior cut resistance over balata. However, unlike SURLYN®-covered golf balls, polyurethane-covered golf balls can be made to have the "click" and 'feel" of balata. (Wu at col. 1, lines 36-46.) As the inventor of the '130 patent had indicated in a 1994 publication, golf ball designers understood that the mechanical properties of the layers impacted the performance of the golf ball more than the materials themselves. (Exhibit G at 334.) Additionally, Wu's polyurethane material inherently has a flexural modulus of about 23,000 psi as measured in accordance with ASTM standards. (Decl. of Jeff Dalton at ¶ 7.) Proudfit's outer cover layer material has a flexural modulus of between about 20,000 and 25,000 psi. (Proudfit, col. 6, lines 28-31 .) Thus, one of ordinary skill in the art would have appreciated that using Wu's polyurethane as Proudfit's outer cover layer would have provided similar playability characteristics as well as numerous advantages including, for example, durability.

Based on Wu's teachings, one of ordinary skill in the art would have recognized the substitutability of soft polyurethane for soft balata-based materials and the advantages of making such a substitution. These advantages include (1) low price compared to balata; (2) better cut resistance when compared to balata; and (3) a "click" and "feel" that is similar to balata. Moreover, the replacing the balata-material taught by Proudfit would have been obvious to those skilled in the art prior to November 9, 1995 because before that time, the Titleist Professional™ golf ball, which had used Wu's polyurethane material, had replaced balata-covered balls as the market leader. (See Exhibit C; see also Decl. of Jeffery L. Dalton at ¶¶ 3-4.)

On page 69 the request concludes with:

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the alleged invention to modify Proudfit's golf ball by replacing the soft balata outer cover layer with an outer cover layer made of soft polyurethane material because polyurethane provides numerous advantages over balata while exhibiting the "click" and "feel" of balata.

This rejection of claim 7 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Ground #49.**

The requester submits on pages 69-71 that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 7 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 7 | Proudfit |
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| A multi-layer golf ball comprising: | "This **invention relates to golf balls**, and more particularly, to a golf ball having a **two-layer cover**." (Proudfit, col. 1, ll. 11-12) |

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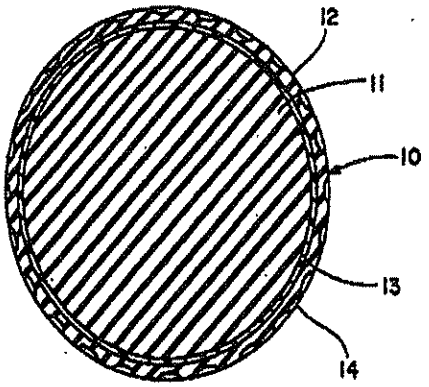
| a spherical core; |  <br>"FIG. 1 illustrates a two-piece golf ball 10 which includes a solid **core 11** [in the shape of a sphere] and a cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"Two specific solid core compositions used with the new two-layer cover had the composition describe in Table 1. One core was used in a golf ball which was designated as a 90 compression ball, and the other core was used in a golf ball which was designated as a 100 compression ball." (Proudfit, col. 7, ll. 51-55) |
| an inner cover layer molded over said spherical core to form a spherical intermediate ball, | "FIG. 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a **cover 12 which comprises a relatively hard inner layer 13 of one or more ionomer resins** and a relatively soft outer layer 14 of polymeric material." (Proudfit, col. 7, ll. 21-24)<br><br>"The inner layer can be molded in one of two methods:<br>1. Injection molded over the core in a manner which is conventionally used to injection mold ionomers over a solid core.<br>2. Injection mold halfshells, place halfshells over the core, compression mold the inner cover over the core." (Proudfit, col. 8, lines 32-38.) |
| said inner cover layer having a Shore D hardness of at least 60, | "The composition of the inner cover layer is described in Table 6." |

| | |
|---|---|
| | TABLE 6<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>Exhibit I: Surlyn® 8940 has a Shore D hardness of 65; Surlyn® 9910 has a Shore D hardness of 64.<br><br>Therefore, this cover blend has a hardness of 60 or more. (See Decl. of Edmund A. Hebert at ¶¶ 8-9.) |
| said inner cover layer comprising an ionomeric resin having no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid and | "The composition of the inner cover layer is described in Table 6."<br>TABLE 6<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30)<br><br>SURLYN 8940 and 9910 are both low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid.<br><br>Proudfit either incorporates by reference these chemical properties or the materials used within the Proudfit golf ball inherently have these chemical properties. For instance, Proudfit incorporates by reference U.S. Pat. No. 4,690,981 in the background of its invention. (Proudfit, col. 1, ll. 39-43.) The '981 Patent discloses the preferable amount of **unsaturated carboxylic acid is "from about 5[%] to about 15% by weight.**" ('981 Patent, col. 3, ll. 59-60.) If Proudfit discloses using blends of SURLYN as the chemical for making the inner cover and the '981 Patent is the formulation for the ionomer known in the art as SURLYN, then inherently grades of SURLYN such as SURLYN 8940 and 9910 would be low acid ionomer resins containing no more than 16% by weight of an alpha, beta-unsaturated carboxylic acid. |

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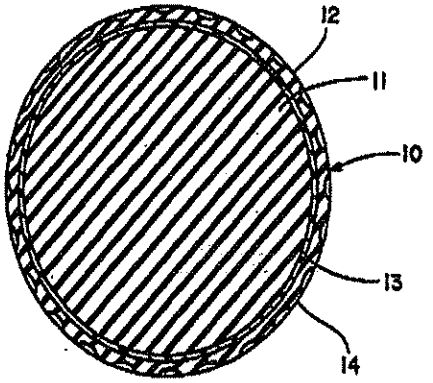
| having a modulus of from about 15,000 to about 70,000 psi; and | "The standard resins have a flexural modulus in the range of about 30,000 to about 55,000 psi as measured by ATM Method D-790. (Standard resins are referred to as "hard Surlyns" in U.S. Patent No. 4,884,814.)" (Proudfit, col. 5, line 66-col. 6, line 1 .)<br><br>"Specific standard Surlyn resins which can be used in the inner layer include 8940 (sodium), 9910 (zinc) ...." (Proudfit, col. 6, ll. 6-7.)<br><br>The composition of the inner cover layer is described in Table 6.<br><br>**TABLE 6**<br>Composition of Inner Layer of Cover (Parts by Weight)<br>Ionomer Type / Blend Ratio<br>Sodium- Surlyn 8940 — 75%<br>Zinc- Surlyn 9910 — 25%<br><br>(Proudfit, col. 8, ll. 22-30.) |
| a dimpled outer cover layer molded over said spherical intermediate ball to form a multi-layer golf ball, | **Figure 1 of Proudfit shows dimples formed on the outer surface**<br>  <br> |
| said outer cover having a Shore D hardness of 64 or less, | "FIG 1 illustrates a two-piece golf ball 10 which includes a solid core 11 and a cover 12 which comprises .... a relatively soft **outer layer** 14 of polymeric material." (Proudfit, col. 7, ll. 21-24.)<br><br>"...an **outer layer of soft material** such as balata or a blend of balata and other elastomers." (Proudfit, col. 5, |

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| | ll. 15-17) This material inherently has a Shore D hardness of less than 64, see the reasoning below.<br><br>An example of this blend is disclose in Table 7 reproduced below.<br><br>**TABLE 7**<br>Composition of Outer Layer (Parts by Weight)<br>Trans Polyisoprene (TP-301) 60.00<br>Polybutadiene 40.00<br>Zinc Oxide 5.00<br>Titanium Dioxide 15.00<br>Ultramarine Blue color .50<br>Zinc DiAcrylate 35.00<br>Peroxide (Varox 250 XL) 3.50<br>Total 160.00<br><br>Note that Trans PolyIsoprene is basically the chemical name for balata and Polybutadience is one of the first types of synthetic rubber or elastomer. As described in the Rule 132 Declaration of Edmund A. Hebert in paragraph 7, the outer cover layer disclosed in Proudfit is the outer cover layer for the golf ball disclosed in Exhibit A to the Rule 132 Declaration and that **cover has a Shore D hardness of 52**. Thus, Proudfit's outer layer cover inherently has a Shore D hardness of less than 64. |
| said outer layer comprising a polyurethane, | "... an outer layer of soft material such as balata or a blend of balata and other elastomers." (col. 5, ll. 15-17.) Also, see below. |
| said outer cover layer having a modulus in a range of about 1,000 to about 30,000 psi. | "The relatively soft elastomeric material of the outer layer has a flexural modulus in the range of about 20,000 to 25,000 psi, and in one specific embodiment had a flexural modulus of from 22,165 to 22,379 psi." (Proudfit, col. 6, ll. 28-31.) |

As pointed out in the request on pages 69 and 70:

...Proudfit teaches a golf ball having a two-piece cover including a hard, ionomeric inner cover layer and a soft balata outer cover layer. While Proudfit may not disclose the use of a polyurethane material as the outer cover layer for a golf ball, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Proudfit's golf ball by replacing the soft balata outer cover layer with the soft polyurethane outer cover layer taught by Molitor '751.

Molitor '751 teaches that: It has now been discovered that a key to manufacturing a two-piece ball having playability properties similar to wound, balata-covered balls is to provide about an inner resilient molded core a cover having a shore C hardness less than 85, preferably 70-80, and most preferably 72-76. The novel cover of the golf ball of the

invention is made of a composition comprising a blend of (1) a thermoplastic urethane having a shore A hardness less than 95 and (2) an ionomer having a shore D hardness greater than 55. (Molitor '751, col. 2, lines 33-49.) In explaining what a "two-piece" golf ball is, the Molitor '751 patent explains that: The phrase "two piece ball" as used herein refers primarily to balls consisting of a molded core and a cover, but also includes balls having a solid layer beneath the cover as disclosed, for example, in U.S. Pat. No. 4,431,193 to Nesbitt, and Other balls having non-wound cores. (Molitor '751, col. 2, lines 7-12.)

Proudfit teaches a "two-piece" golf ball that fits within this definition. Molitor '751 explains that the advantages of using a cover layer including a soft polyurethane material on a two-piece golf ball, such as the golf ball of Proudfit, include "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two- piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

Molitor expresses the hardness of the cover material as a Shore C hardness of less than 85, preferably 70 to 85 and most preferably 72 to 76. (Molitor '751, col. 4, lines 21-25.) Based on Callaway's own measurements, a Shore C hardness of 73 is equal to a Shore D hardness of 47. (See U.S. Patent No. 6,905,648, Table 19 (Exhibit L.) A cover material having a Shore C hardness of between 72 and 76 will inherently have a Shore D hardness of less than 64.

On page 70 the request concludes:

> Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the soft balata outer cover layer of Proudfit with the soft outer cover layer including a soft polyurethane material as taught by Molitor '751 to provide golf balls that have "playability properties as good or better than balata-covered wound balls but are significantly more durable," and "have better wood playability properties than conventional two-piece balls, and permit experienced golfers to apply spin so as to fade or draw a shot" while having improved puttability. (Molitor '751, col. 2, lines 61-68.)

This rejection of claim 7 based on Proudfit in view of Wu was proposed by the third party requester in the request for reexamination and is being adopted essentially as proposed in the request.

Re. Claim 8

**Proposed Third Party Requester Rejection: Ground #50.**

The requester submits on pages 71 that claim 8 is unpatentable under 35 U.S.C. § 102(b) as being anticipated by Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt).

**This rejection is not adopted for the reasons given in response to Proposed Ground #1 above.**

**Proposed Third Party Requester Rejection: Ground #51.**

In the alternative, the requester submits on pages 71-72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '637.

**Proposed Third Party Requester Rejection: Grounds #52.**

The requester submits on pages 72 of the request that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt mentioning Molitor '637 in view of Wu, as evidenced by Exhibit C.

**Proposed Third Party Requester Rejection: Ground #53.**

The requester submits on pages 61-63 of the request that claim 7 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Nesbitt, U.S. Pat. No. 4,431,193 (Nesbitt) in view of Molitor et al., U.S. Patent No. 4,674,751 (Molitor '751).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Nesbitt in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Nesbitt discloses, teaches or suggests the claim limitations.

| Claim 8 | Nesbitt |
|---|---|
| The multi-layer golf ball of claim 7 | See above. |
| wherein the Shore D hardness of said outer cover layer is less than the Shore D hardness of said inner cover layer. | "The disclosure embraces a golf ball and method of making same wherein the golf ball has a solid ... resilient center or core, and a multilayer cover construction, which involves a first layer or ply of molded hard, high flexural modulus resinous material on the core, and a second or cover layer of soft, low flexural modulus resinous material molded over the first layer to form a finished golf ball." (Nesbitt, Abstract.) |

These rejections of claim 8 based on Nesbitt in view of Molitor '637; Wu; or Molitor '751 were proposed by the third party requester in the request for reexamination and are being adopted essentially as proposed in the request.

**Proposed Third Party Requester Rejection: Grounds #54-56.**

The requester submits on page 72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al. U.S. Pat. No. 4,274,637 (Molitor '637).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '637.

The requester submits on page 72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Wu, U.S. Pat. No. 5,334,673 (Wu).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Wu.

The requester submits on page 72 that claim 8 is unpatentable under 35 U.S.C. § 103(a) as being obvious over Proudfit, U.S. Pat. No. 5,314,187 (Proudfit) in view of Molitor et al., U.S. Pat. No. 4,674,751 (Molitor '751).

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Proudfit in view of Molitor '751.

Below is a claim chart identifying the claim limitations and where Proudfit discloses, teaches or suggests the claim limitations.

| Claim 8 | Proudfit |
|---|---|
| The multi-layer golf ball of claim 7 | See above. |
| wherein the Shore D hardness of said outer cover layer is less than the Shore D hardness of said inner cover layer. | "This invention relates to golf balls, and, more particularly, to a golf ball having a two-layer cover. The inner layer is formed from hard resin material such as ionomer resin, and the outer layer is formed from soft material such as balata or a blend of balata and other elastomers." (Proudfit, col. 1, ll. 11-16.) |

These rejections of claim 8 based on Proudfit in view of Molitor '637; Wu; or Molitor '751 were proposed by the third party requester in the request for reexamination and are being adopted essentially as proposed in the request.

***Correspondence***

**All** correspondence relating to this *inter partes* reexamination proceeding should be directed as follows:

By **U.S. Postal Service Mail** to:

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Any inquiry concerning this communication or earlier communications from the Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

Signed:

Michael O'Neill
CRU Examiner
GAU 3993

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